

**INTERNATIONAL HARMONISED RESEARCH ACTIVITIES (IHRA)
SIDE IMPACT WORKING GROUP**

Confirmed Minutes of 5th Meeting held at ACTS, Sailuf, Germany July 12, 1999

Attendees:

Keith Seyer	Chair / FORS / Australia
Dainius Dalmotas	Transport Canada / Canada
Risa Scherer	WorldSID Task Group / Ford
Robert W. Hultman	OICA / N.A. / Ford
Takahiko Uchimura	JASIC / OICA / JAMA
Haruo Ohmae	JARI
Ute Maaz	
Hideki Yonezawa	JMoT / Japan
Toru Kiuchi	JASIC / JAMA / Toyota / Japan
Joseph Kaniyanthra	NHTSA / US DOT
Rainer Justen	OICA / ACEA / Daimler Chrysler
Richard Lowne	EEVC (WG 13)
Martina McCaskey	ACTS (observer)
Suzanne Tylko	Transport Canada / Canada (acting Secretary)

1. Introductions:

The chairperson welcomed delegates.

2. Confirmation of agenda:

The results of the JAMA accident study, introduced in Kyoto, were added to Item 12 of the agenda.

The NHTSA computer simulation report was moved from item 11 to item 7.

The agenda was accepted as amended.

3. Confirmation of Minutes of Previous Meeting:

Minutes for the meeting held May 15, 1999 in Kyoto Japan are not available at this time. These have subsequently be sent out.

4. Report from WorldSID Task Force

Risa Scherer reported that the team has officially started work. Items completed to date are as follows:

- New accelerometer designs are complete, but this does not mean that these are the only accelerometers that may be used;
- The instrumentation layout is currently being planned;
- Looking at providing 3 Data Acquisition Units with the WorldSID α -prototype. This will provide 96 channels;
- Design specifications have been finalised by the Task Group. The specifications are being reviewed by the Design Team to notify the Task Group of any limitations;
- A report is expected on the thorax / shoulder / abdomen concept; FTSS and SID-2000 are jointly working on a concept and will be presenting the concept in Barcelona;
- An evaluation plan for the α -prototype has been prepared. Transport Canada and NHTSA have agreed to conduct the evaluation phase;
- The α -prototype is not expected to be available before September 2000 with the earliest expected release date of the β -prototype being Feb. 2002; [Document No. SIWG 50]
- Final project completion is expected for March 2004;
- The program has always been only the 50th percentile male dummy. Development of a 5th percentile female dummy would need to be proposed to ISO WG5.

Discussion:

The WorldSID task group is awaiting direction re dummy requirements such as anthropometry, injury criteria etc;

Joseph Kaniathra stated that NHTSA test procedures include a child dummy, therefore the need for a child dummy should be anticipated;

Keith Seyer concluded the discussions by stating that we must work with available dummies for the time being in any test program to determine the important parameters for a side impact test procedure.

5. Report from IHRA Biomechanics Working Group

Keith Seyer presented a review of the anthropometric data analysis. [Document No. SIWG 51]

Discussion:

Mr. Dalmotas and Mr. Lowne brought up the concern of fatality rate definitions and questioned if the method used for the analysis was indeed appropriate. Mr. Seyer agreed to investigate the concern upon his return to Australia. **(Action: Seyer)**

TNO has agreed to use critical parameters from Jurgens as input variables for the RAMSIS model. The model output for the various body dimensions can then be compared to Jurgens' estimates weighted in the different ways presented by Mr Seyer. The report on the anthropometric study is to be sent to Rolf Eppinger (Chair of the Biomechanics working group) who will then circulate it among Biomechanics WG members for comments. The report together with member's comments will be submitted to the WorldSID task group.

6. Feedback from IHRA Steering Committee on Draft Terms of Reference for IHRA Side Impact Working Group.

The steering committee meeting was held June 24, 1999 in Geneva.
There has been only one modification to the draft [Document No. SIWG 52]:

“Monitor and as appropriate, provide input to the development of WorldSID and any other side impact dummy”.

The steering committee was confused about the inter-relationship of various committees and / or task groups.

- ⇒ Richard Lowne has drafted a document describing group activities;
- ⇒ The organisational chart prepared by Marc Beusenberg and presented at the WorldSID meeting will be appended to this document and submitted to the steering committee.
- ⇒ Circulate Mr Lowne's paper with Mr Beusenberg's chart attached for comments. **(Action: Newland)**

Discussion:

Delegates from Japan requested feedback on the proposal submitted by Japan to the steering committee on the direction the various working groups are taking to develop test procedures. No one present was aware of any discussions and / or feedback from the steering committee pertaining to this proposal.

Mr Seyer suggested that it was inappropriate to discuss the matter at the working group level as it was for the IHRA steering committee to set the directions that the working groups should take.

- ⇒ Joseph Kaniyanthra will discuss the matter with the chairperson of the steering committee.
- ⇒ Dainius Dalmotas to talk to Brian Jonah and advise Keith Seyer

⇒ Mr Yonezawa to discuss with JMoT officials in Japan and report at the next meeting.

7. Test Results and Proposed Matrices

FORS

Keith Seyer presented the results of the FORS / TC joint study.
The data will be transferred to CD-ROM for distribution among members [Doc. No. SIWG 54]. Provide high-speed film excerpts either as AVI files or VHS in correct format for various members. **(Action: Newland)**
A copy of the test matrix was distributed.

Results:

- ⇒ The two largest effects on driver injuries were barrier height and speed;
- ⇒ Doubling stiffness increased risk of pelvic injury only. Increasing the mass and stiffness of the barrier only had marginal effects on dummy response.
- ⇒ lower mass vehicle (test 9) had a much higher torso response, elevated VC was observed for the BioSID rib numbers 2, 3, 4 and 5 without corresponding increases in door -dummy contact velocity.

Discussion:

Input / insight from members is requested.
Dainius Dalmotas stated that an elevated VC is sometimes observed with reduced door depth, dependent on the amount of padding and how the B-pillar and door collapse.
BioSID pelvis impact tends to lag behind the thorax.

TRANSPORT CANADA

Dainius Dalmotas presented the results of Transport Canada's dynamic crash test series completed to date. TC to provide CD-ROM of data to members. **(Action: Dalmotas)**

JAMA / JMoT

JMoT is undecided at the moment;
JAMA is interested in the EuroSID 2 and would like to evaluate the dummy. Earliest start date would be Jan. 2000. The budget is frozen at the moment and possible funding from JMoT has not been finalised yet, therefore future activities have not been defined.
Need to try to harmonise, if it is not possible to rely on one single MDB test then we should at least try to minimise the differences in parameters.

Discussion of JAMA / JMoT input into test program:

The objective of the FORS / TC study was to demonstrate direction.

Joseph Kanianthra suggested that it is possible to have parallel efforts. JAMA would be interested in evaluating the EuroSID2 with both the ECE and US regulations, conditional on funding. Pole impacts with the EuroSID2 could also be a possibility.

EEVC

Overview of a parametric study using Oasys-LSDYNA3D examining the effects of MDB impact position and stiffness on side impact response was presented by Richard Lowne [Document No. SIWG 56]

Richard Lowne has discussed the test matrix proposed by TC with the EEVC and they appear interested in participating in approximately half of the tests.

DRAFT TEST PROCEDURE STRAWMAN

Richard Lowne raised the following points:

1. Large number of tests are being proposed;
2. Is the pole test so severe that it would extend protection to the MDB?
3. Crabbing: typical accident seemed to be with people pulling out of intersections (ie. target vehicle has low velocity). He would like to review this issue taking the rear passenger into consideration.
4. Is it more important to look at developing a new MDB to represent SUV aggressive front or to try and reduce aggressiveness of SUV's?

Discussion:

Dainius Dalmotas reminded delegates that you don't want to over optimise design on one single test condition. Mr. Dalmotas also suggested that perhaps since mass doesn't seem to play as important a role the focus should be on geometry.

Keith Seyer emphasised that test results from around the world are needed to confirm the importance of significant parameters.

The vehicle selection will be brought to the table at the next meeting.

Current suggestion on behalf of Transport Canada is to use the Toyota Camry as bullet. Dainius Dalmotas has agreed to contact Toyota to discuss design differences in front structures.

NHTSA is focusing on the EuroSID2 evaluation. Currently, primary interests lie in SUV problem and pole testing. Tests to be conducted will be crabbed. US industry has proposed crabbing to exercise the rear dummy in its harmonisation petition to NHTSA.

ACEA requested further discussion on Strawman [Document No. SIWG 18 rev2]:

slide 1: Would like title revised to "Test Procedure Strawman for Research Test Matrix";

- slide 2: Replace crash test dummies from ISO to crash test dummies recommended by IHRA Biomechanics;
- slide 4: Change 5th percentile WorldSID to 5th percentile female, 50th percentile WorldSID to 50th percentile male WorldSID and add child dummies.
- slide 5: MDB crash test stiffness needs to be considered carefully crush vs Inertia ie. how it is specified and measured;
- slide 6: Question crabbed condition;
- slide 10: Impact conditions (pole) speed 30 km/h EEVC to review, the seat track position is still to be determined.

EEVC

Force deflection curves for the Ford Mondeo were presented by Richard Lowne [Document No. SIWG 55].

NHTSA

Joseph Kianianthra briefly presented preliminary simulation work that is in progress at NHTSA.

8. DEVELOPMENT OF A TEST MATRIX FOR IHRA SIDE IMPACT WORKING GROUP

All members will consider / examine FORS / TC study to determine how best to interpret and apply conclusions to future test matrix and outline their own contributions for November '99 meeting.

9. PRESENTATION OF ACCIDENT STUDIES

FORS injury study will be tabled at the November meeting. It may be possible for Monash University to present the results at that meeting. **(Action: Seyer)**

10. GEOMETRIC STUDIES OF THE FLEET

Japan will be ready to present results at the November meeting.

Australian H-Point data was presented by Keith Seyer. Electronic copies of the raw data will be sent out to members for their review. More vehicles will be presented in November. **(Action: Newland)**

Bob Hultman will look into the possibility of obtaining corresponding data for the North American fleet. If so, he will present data at November meeting. **(Action: Hultman)**

11. Moved To Item 7

12. OTHER BUSINESS

JAMA presented the accident / injury study.

Missing data at present on rear seat occupants, other occupant's age and gender.

Supplementary data source may be available through JMoT.

JAMA would like to look at other data sources prior to putting forth conclusions.

Members are asked to review side impact collisions and injury distributions to evaluate impact / influence on side impact test procedures.

13. NEXT MEETING

The next meeting is scheduled for the 3rd and 4th of November in San Diego.

The following meeting to be held in Madrid on 7th and 8th February 2000 after the IHRA compatibility and advanced offset frontal meetings.